narios. It enables and enhances the analysis of studies across products, jurisdictions, and time.

In addition to being a spreadsheet building tool, VCost contains a repository of commonly used current data. The repository ensures that the data sources and data are the most current available. The system performs processes such as levelization and inflation in a standard format, thereby promoting consistency and accuracy, while reducing process time spent by users. The system reduces the potential for errors by automatically reflecting any changes to formulas and processes throughout the study.

VCost is a client/server application. The system resides, in part, on the personal computer of a user and interacts continually with two relational databases that reside, relative to most users, on a server in a remote location. The databases contain the formulas and structure of each study defined in the system, common processes, and the data repository mentioned earlier.

While numerous cost studies can be developed using the spreadsheet building capabilities of VCost alone, for many studies the program will interface with other costing tools to retrieve requisite study input data. For example, VCost can use investments developed by the Telcordia Switching Cost Information System/Intelligent Network (SCIS/IN) investment model.

B. LCAM

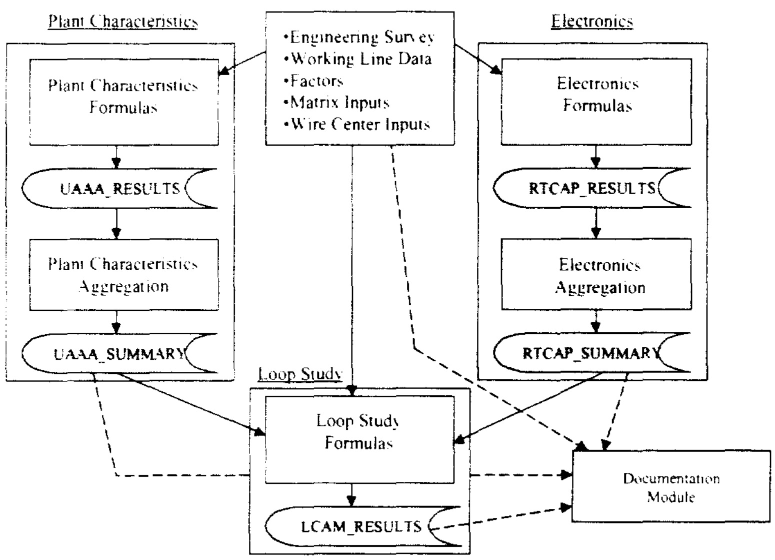
The Loop Cost Analysis Model (LCAM) is designed to assess the investments and costs associated with the local loop. It has three portions that are combined in an Oracle SQL database, with Oracle SQL and Visual Basic programs running against that database. LCAM derives its loop plant characteristics from a survey of feeder route data conducted by Verizon engineers. LCAM has three study modules: Plant Characteristics, Electronics, and Loop Study. It also has a documentation module that generates reports, inventories the source documents, and organizes the study.

The Plant Characteristics module, which looks at average lengths of segments of the network, is derived from the Ultimate Allocation Area Analysis (UAAA) model. That is, the physical characteristics of the Outside Plant Network are obtained from the respective engineering group for geographic subdivisions of the wire center. These areas are identified as Ultimate Allocation Areas (UAAs). A mechanized report of working lines in each distribution area (DA) is obtained from the Loop Engineering Assignment Data (LEAD) database, and this data is assigned to the appropriate UAA. The Plant Characteristics module computes the feeder, subfeeder and distribution length and structure for each UAA. The investment per pair foot is derived from the cable sizes and investment data derived from the Verizon systems that aggregate and store cable investments within the studied jurisdiction. These results are weighted by working lines in the selected services, and are summarized by wire center.

The Electronics module analyzes the total working lines by DA or Carrier Serving Area (CSA) to identify the appropriate size and investment for Digital Loop Carrier (DLC) equipment. If CSAs have not been identified by the Engineering organization, the UAA may be used as a surrogate. From these details, a weighted average DLC investment is determined for each wire center.

The Loop Study module utilizes the summarized results of the Plant Characteristics and Electronics studies and various other factors to compute loop costs for the available architectures for each wire center and then weighs these costs to produce a composite loop cost.

LCAM Process Flow



The diagram above depicts the process followed by LCAM. There are various inputs in the center: an engineering survey, working line data, various other inputs and factors such as utilization factors, unit investments, annual cost factors, fiber/copper breakpoint, etc.

In the Plant Characteristics module, the basic level of data is the UAA, which is a subdivision of the wire center. The UAA can be anywhere from a few hundred to a couple thousand lines, but it is not the whole wire center. There may be anywhere from 20 to 150 UAAs within a given wire center.

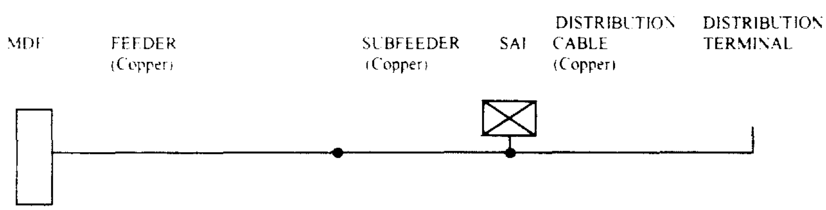
The first level of plant characteristic analysis is performed for each UAA in the wire center, and the results are written to the UAAA results table. These formulas include loop segment lengths (feeder, sub-feeder and distribution), structure percentages, and cable investments specific to the UAA. A second set of "aggregation" formulas sum, average or weight the UAA-level data in order to generate average investments for the wire center.

The Electronics module works similarly. Each UAA is analyzed to identify the number, size and investment required for DLC to serve that area. The UAA level results are written to the RTCAP Results table, and the aggregation formulas sum and average those values to produce average capacity-cost-based investments for DLC.

The average results by wire center from the Plant Characteristics and Electronics outcome tables are inputs to the Loop Study. All Loop Study calculations are made at the wire center level. The results are investments and costs per line for feeder, electronics, and distribution, taking into account utilization. These Loop Study results are written to an output file for each wire center. Saved queries called "views" create jurisdiction-wide averages by weighting the wire center results according to the number of working lines at each wire center.

There are three primary constructs for the physical characteristics of the outside plant in the engineering assumptions. The first construct uses an all-copper construction (copper feeder cable, copper sub-feeder cable, copper distribution cable, copper drop wire, no electronics) for loops where the feeder segment is shorter than the copper/fiber breakpoint and the customers are not located in large buildings. The diagram below illustrates this loop construct:

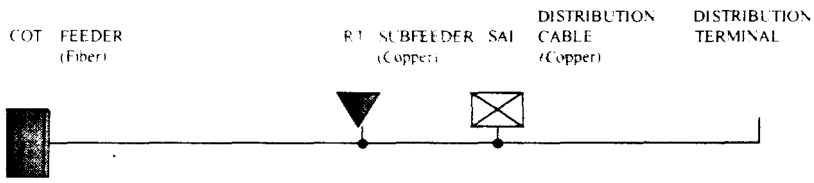
1. DISTRIBUTED PLANT -- UNDER THE BREAKPOINT
All Copper Loop
• Main Distributing Frame at CO
• Copper Feeder, Sub-feeder and Distribution Cable
• No Electronics



For those loops with feeder segments that are longer than the break point, Verizon assumes a DLC loop construct comprised of certain electronic equipment (a central office terminal (COT) and a remote terminal (RT)) connected by fiber cable. At the remote terminal, the fiber transport is converted back to copper and connected via a copper sub-feeder cable to a cross-connect interface (sometimes referred to as the serving area interface, or SAI). Copper distribution cable then connects to the customer via a distribution terminal, drop wire and NID. This construct is illustrated by the following diagram:

2. DISTRIBUTED PLANT -- OVER THE BREAKPOINT
Fiber-fed DLC

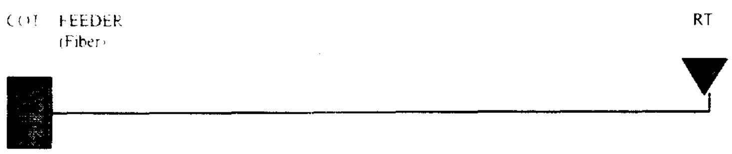
- Litespan COT and RT
- RT serves one UAA
- Fiber Feeder, Copper Sub-feeder and Distribution
- Loops with Feeder length over the breakpoint



The third major construct is fiber-to-the-building. This construct consists of fiber feeder connected to an RT located inside a building and is used to serve buildings regardless of loop length if the building houses more than a certain number of working lines. The diagram below illustrates the fiber-to-the-building construct:

3. FIBER TO THE BUILDING

- COT at CO
- Litespan RT inside building, connected to inside wiring
- Serves large buildings
- Irrespective of loop length



The engineering network survey is one of the key inputs to the model. It determines the route from the customer back to the central office through other UAAs, called Prior UAAs (PUAA), building a chain of PUAAs. Generally, UAAs are structured contiguously, which means that the feeder cable for one UAA may tured contiguously, which means that the feeder cable for one UAA may feed the next UAA, and so forth. As a result, the LCAM model keeps track of each contiguous UAA to calculate the individual UAA cable length and investments, which may be used in the calculation of the next UAA. The engineering network survey identifies the cumulative feeder distance, the total distance out to the UAA, the sub-feeder distance, the total loop length, the predominant feeder size in the last segment getting to the UAA and structure in that segment, the predominant structure in the distribution, and the number of distribution areas in the UAA.

Another critical input in the Plant Characteristics module is the cable investment data. These investments are developed from Verizon data systems that track cable investments. The installed cable prices loaded into the LCAM module include SAI investments as well as terminals, drops, and NIDs. The costs of engineering, installation and other costs related to the placement of cable are also included. The copper cable price is input in a form that allows the model to create or interpolate a cost for any cable size. The installed cable prices for each size per sheath foot of fiber cable investment are input along with engineering selections, determining the appropriate fiber cable size for any given UAA.

One of the major assumptions in the Plant Characteristics module is that each UAA is treated as a sample loop. This module combines the specific characteristics of each UAA, including the cable size for feeder and distribution, the length of feeder and distribution, and the percentage of aerial, buried, and underground cable, to compute investments per pair foot for the copper cables. The characteristics of all of the UAAs are weighted by the number of lines in each UAA to produce an average loop characteristic for the wire center. LCAM Plant Characteristics module combines the specific characteristics of each UAA into wire center investments per foot and weighted average loop segment lengths. The following chart demonstrates how the feeder structure and size are calculated:

CHART I

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
UAA	Fdr Segment	Segment Length		Fdr Str	Aer Fdr	Bur Fdr	UG Fdr	WKG	Weighting	Wtd Aer	Wtd Bur	Wtd UG	Fdr Size	Wtd Size
1040	1040	10 - 7 =	3	A	3								1200	56.84211
1040	1030	7 - 4 =	3	A	3								1200	56.84211
1040	1020	4 - 1 =	3	U			3						1500	71.05263
1040	1010	1 - 0 =	1	U			1						2700	42.63158
			10		6	0	4							
					60%	0%	40%	300	15.8%	9%	0%	6%		
1030	1030	7 - 4 =	3	A	3								1200	106.2707
1030	1020	4 - 1 =	3	U			3						1500	135.3383
1030	1010	1 - 0 =	1	U			1						2700	81.20301
			7		3	0	4							
					43%	0%	57%	400	21.1%	9%	0%	12%		
1020	1020	4 - 1 =	3	U			3						1500	118.4211
1020	1010	1 - 0 =	1	U			1						2700	71.05263
			4		0	0	4							
					0%	0%	100%	200	10.5%	0%	0%	11%		
1010	1010	1 - 0 =	1	U			1						2700	1421.053
			1		0	0	1							
					0%	0%	100%	1000	52.6%	0%	0%	53%		
								1900		18%	0%	82%		2162.707

COL F = IF COL E = "A" (aerial) THEN COL D ELSE 0
COL G = IF COL E = "B" (buried) THEN COL D ELSE 0
COL H = IF COL E = "U" (underground) THEN COL D
COL J = COL I / SUM OF COL I FOR ALL UAAS
COL K = COL F * COL J COL L = COL G * COL J COL M = COL H * COL J
COL O = COL N * COL D / SUM OF COL D FOR UAA * COL J

The following chart demonstrates how feeder length, distribution length and percent of structure type are calculated.

CHART II

WEIGHTED FEEDER LENGTH:

A	B	C	D
UAA	CUM	Weighting	Wtd Feeder
1040	10	15.8%	1.5789
1030	7	21.1%	1.4737
1020	4	10.5%	0.4211
1010	1	52.6%	0.5263
			4.0000

WEIGHTED DISTRIBUTION DATA:

E	F	G	H	I	J	K	L	M	N	O	P	Q
UAA	PDP	- CUM	- LENGTH =	DIST	Weighting	Wtd Len	STRD	Aer Dist	Bur Dist	UG Dist	Dist Size	Wtd Size
1040	16	10	0	6	15.8%	0.95	A	15.8%			300	47.3684
1030	12	7	0	5	21.1%	1.05	B		21.1%		400	84.2105
1020	12	4	0	8	10.5%	0.84	A	10.5%			200	21.0526
1010	5	1	0	4	52.6%	2.11	A	52.6%			1000	526.316
						4.95		78.9%	21.1%	0.0%		678.947

FORMULAS

COL C = COL J FROM CHART I
COL D = COL B * COL C
COL I = COL F - COL G - COL H
COL J = COL C
COL K = COL I * COL J / 2
COL M = IF COL L = "A" THEN COL J ELSE 0
COL N = IF COL L = "B" THEN COL J ELSE 0
COL O = IF COL L = "U" THEN COL J ELSE 0
COL P = COL I FROM CHART I
COL Q = COL P * COL J

With respect to the Electronics Module, digital loop carrier electronic investments are developed from vendor prices for each of the available sizes, assuming a bi-directional add-drop configuration that allows one COT to serve up to a maximum of five RTs on two sets of fibers (so long as the demand in a given route does not exhaust the COT capacity before attaining five remote terminals). Although the common plug-ins that are required are added in this module, the channelizing or service plug-ins are added in the loop study module.

The Electronics Module calculates a unit investment for the RTs, universal COTs, and integrated COTs by taking the hardwired and common plug-in investments for each and dividing by capacity. Then the Electronics Module looks at each and every UAA. It determines, based on the copper/fiber breakpoint, whether digital loop carrier will be required in that UAA. If so, it determines the appropriate size, determines the investment for that size, and weights the investment based on total capacity, not just the number of working lines. For the fiber-to-the-building construct, the average investment for RTs in the building is calculated based on size and percentage of lines. The percentage of lines served by this construct differs from one wire center to another. Urban offices tend to have a larger number of large terminals, while rural offices may have none. Then, in the aggregation routine, the model sums those investments for the wire center and divides by the total capacity to develop a weighted average unit investment. The system determines the minimum number of Central Office Terminals (COTs) required to serve the number of RTs based on the concentration ratio and the capacity constraints of the hardware (504 card slots) and bandwidth (2016 DS0s per set of fibers and 4032 per integrated COTs) and the maximum number of RTs per COT. For each wire center, the average line capacity of a fiber strand is calculated by dividing the total capacity of the RTs by the total number of fibers.

The Loop Study module uses the outputs from the Plant Characteristics module and the outputs from the Electronics Module, along with other inputs (*e.g.*, fills, cost factors from VCost, and pole and conduit investments), to calculate the investment per line for each wire center. The DLC plug-in investments specific to the service are added, resulting, for example, in a different value for a two-wire loop versus a DS1 loop. Loops that are on copper feeder or on UDLC also require the main distribution frame at the central office, which is added in this module. Pole investments are calculated for aerial fiber and copper cable, conduit investments are calculated for underground fiber and copper cable, and the land and building investments are calculated based on the electronics investment.

The following is an example for one wire center showing how costs are developed. Costs for other components are developed in a similar manner specific to the type of equipment or facilities involved.

SAMPLE FORMULA

Distribution, Metallic, Distributed Plant
Under Threshold

	AERIAL	BURIED	UNDERGROUND	TOTAL
Circuit Equivalent	1.00	1.00	1.00	
* Pct used in construct	1.00	1.00	1.00	
* Pct Under	0.23	0.23	0.23	
* Distribution Length	2586	2586	2586	
* Pct by Account	0.00	0.00	1.00	
* Inv per Pair Foot	0.0358	0.0572	0.0338	
/ Copper Dist Fill	0.41	0.41	0.41	
Total Investment	0.00	0.00	49.97	49.97
Annual Cost Factor	0.4116	0.3846	0.3127	
Monthly Cost	0.00	0.00	1.30	1.30

Distribution, Metallic, Distributed Plant
Over Threshold

	AERIAL	BURIED	UNDERGROUND	TOTAL
Circuit Equivalent	1.00	1.00	1.00	
* Pct used in construct	1.00	1.00	1.00	
* Pct Over	0.77	0.77	0.77	
* Distribution Length	1291	1291	1291	
* Pct by Account	0.08	0.00	0.92	
* Inv per Pair Foot	0.0357	0.0571	0.0329	
/ Copper Dist Fill	0.41	0.41	0.41	
Total Investment	6.87	0	73.81	80.68
Annual Cost Factor	0.4116	0.3846	0.3127	
Monthly Cost	0.24	0.00	1.92	2.16

TOTAL COSTS, METALLIC DISTRIBUTION 3.46
Distributed Plant

The Circuit Equivalent is the number of copper pairs required to provision the service

The results of the Loop Study are the investments and costs by wire center. They can be aggregated through the reports into density cell and jurisdiction results. The loop investments can also be exhibited by plant account, if needed.

Loop costs are developed using forward-looking economic assumptions appropriate for the loop network. Consistent with forward-looking assumptions, the loops reflect copper or fiber optic feeder cable (based on the copper/fiber break-point), copper or fiber distribution cable, and DLC and other electronic equipment. The following shows for each construct the appropriate loop network components for the two-wire loop.

Investment and Cost Components 2 Wire			
Components in Cost Study:	Dist Plant Under BP	Dist Plant Over BP	Fiber to Building
• Metallic Distribution	X	X	
• Fiber Distribution			X
• Metallic Sub Feeder	X	X	
• Fiber Sub Feeder			X
• Metallic Feeder	X		
• Fiber Feeder		X	X
• Electronics		X	X

"Secondary" elements are derived from the elements above:

- Poles based on fiber and metallic cable
- Conduit based on fiber and metallic cable
- Land and building based on electronics

Finally, the model converts these investments to monthly costs per loop by multiplying by the TELRIC ACFs and dividing by twelve.

C. SCIS

The Switching Cost Information System (SCIS) model, developed by Telcordia Technologies, estimates required investments for switching. The investment estimates are based upon (1) statistics concerning the number of access lines and trunks served by a switch and (2) traffic characteristics, including average busy hour CCS per line and trunk. The total investment calculated by SCIS is based upon investment tables (which, in turn, reflect national vendor price lists) and the input of forward-looking discounts for each switch vendor.

In addition to developing total investments, SCIS calculates a standard set of basic switching investment primitives for each office or remote (each called a NODE) needed to determine switching investments. These basic switching investment primitives are available for each NODE, for a group of NODES, for a geographic area, or for all switches in a specific jurisdiction. These investments may be weighted together to provide results consolidated by technology. When results are required for more than one switch in an area, a study is defined and offices are assigned to that study. Study calculations are then initiated to weight the previously determined results (NODE level results). Investment loadings are applied to the SCIS identified investments to develop total in-place switching investments.

SCIS is a PC-based system which contains two modules, SCIS/Model Office (SCIS/MO) and SCIS/Intelligent Network (SCIS/IN). SCIS/MO is the module that develops switching investments for model offices and SCIS/IN develops incremental investments associated with vertical switch features. SCIS output investments can be transmitted to other models and also into different studies where necessary. For example, the SCIS/MO results can be transferred into SCIS/IN electronically to determine feature-related incremental investments. Detailed results are readily available through a variety of output reports and formats.

In order to determine switch investments associated with usage, the total material investment for the Line and Trunk Port components of the SCIS model office output is subtracted from the total SCIS investment. This usage investment represents all switch investment, without the Trunk Port and Line Port investments, and includes features that do not require unique incremental hardware.

The usage investment is then divided by the busy hour total switch minutes of use (MOU) capacity (at the planning cycle midpoint) to arrive at a total material investment per busy hour MOU associated with usage. Upon application of the appropriate investment loadings, this is converted to a total installed investment per busy hour MOU associated with usage which is then expressed as a cost by applying the appropriate annual cost factors. This cost can then be translated to an all hours of the day (AHD) MOU cost by the application of the busy hour to AHD conversion factor.

In order to develop a cost per billable minute, an adjustment must be made to account for non-conversation time (NCT). Conversation time is the actual time (in MOU) that switch resources are being used during the conversation part of each call.

Non-conversation time represents the time that switch resources are being used other than during the actual conversation time. For example, NCT includes the time required for dialing the call, ringing, and call set-up. It also includes the time associated with calls that are not completed (that is, the called party does not answer). Since non-conversation times are not measured by the switches' billing recordings, and thus cannot be billed, NCT must be added to the conversation minutes (MOU's) to account for these times. The ratio of the sum of conversation minutes and NCT to conversation minutes is multiplied by the cost per minute previously developed in order to capture the non-conversation time use of resources. The switching network (and corresponding investment) is designed to handle average busy season, busy hour traffic loads (measured in hundred-call-seconds or CCS). The average busy season busy hour represents the largest amount of traffic that must be carried by the switch network. This ensures there will be no blocking during peak usage periods on the switching network. The busy hour traffic load is different for lines and trunks and the load is input separately into SCIS/MO for each switch. For usage without features, the costs are determined in the same manner as described for local switch usage. However, the getting started (*i.e.*, switch processor and memory) investments identified by SCIS as well as RTU fees are excluded.

D. CCSCIS

The Signaling System 7 (SS7) network is used to send control information to switches about setting up and releasing facilities that are used to originate and terminate interoffice calls. The Common Channel Signaling Cost Information System

(CCSCIS) is used to develop the element investments and the signaling costs. The CCSCIS model is the companion to the SCIS office model. Whereas the SCIS model develops investments for the switched network, the CCSCIS model develops investments for a separate signaling network. This separate signaling network provides control, address, and supervisory information for those messages that ride on the switch network. For example, consider a customer who picks up the phone and dials a number to make a call. That call is sent to the local central office, where the call processing is halted. A message is sent over the SS7 network to determine whether the destination line for that call is busy and whether the destination line is in service. It then sends that information back to the originating central office so the call can be completed.

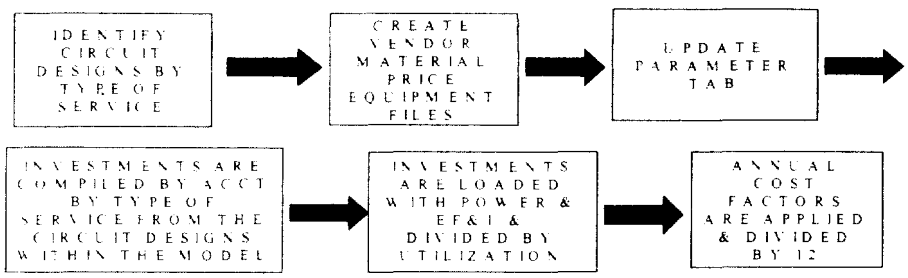
All of the SS7 network components are considered by the CCSCIS model, except for the Switching Services Point (SSP). The SSP is really an end office that has SS7 software and hardware in order to send and receive messages. The investment for the SSP is developed in the SCIS model itself. The CCSCIS model is designed to calculate busy hour unit investments of SS7 network components and AIN equipment. CCSCIS contains several Component Models which are used to study individual SS7 network components. These components include Signal Transfer Points (STPs), Service Control Points (SCPs), and Links. Since the SS7 network is used by many services and uses the equipment in different ways, the model calculates a primitive output, which will represent one unit of use, *e.g.*, a busy hour query or a busy hour octet. The investments of the SS7 equipment components (STPs, SCPs and links) are apportioned to the primitives according to the cost causality, *i.e.*, the functions of the equipment, how the equipment is used, and the factors that cause additional equipment to be purchased. Different services use different combinations of the equipment, and those combinations of equipment are added together in the CCSCIS aggregation model. The investments per unit of primitive use are then combined to a service-specific total investment and total cost in separate studies outside the CCSCIS model.

E. IOF Model

The IOF study, which is in an Excel spreadsheet format, develops a cost for circuits that carry traffic between two different central offices, including the circuit equipment, the fiber facilities, and the outside plant supporting structure. The forward-looking IOF network is assumed to be 100% SONET, with service provided on OC48 SONET rings. The IOF cost model develops fixed and per-mile costs for the following UNEs: a DS1, which is the equivalent of 24 DS0s (or voice grade or data circuits); a DS3, which is the equivalent of 28 DS1s or 672 DS0s, as well as the STS-1; the OC3, which is the equivalent of 3 DS3s or 2,016 DS0s; and the OC12, which is the equivalent of 12 DS3s or 8,064 DS0s.

The process of calculating IOF costs is composed of four basic stages. The first stage is to identify the circuit designs, the second is to build the equipment files, the third is the IOF investment development process, and fourth is the cost factor application stage. The following diagram shows the basic cost study process.

IOF Cost Study Process Summary



The study starts with contract prices and vendor information for the major equipment components of the circuit designs for the different transmission speeds required. The material prices are compiled into typical equipment configurations. Engineering provides the circuit layouts that identify the equipment that is included in the cost of a particular service. This is also required to determine what equipment components must be included in the design for the various IOF service types. The vendor material prices that Verizon pays for the equipment used in the IOF circuits are calculated on the basis of the smallest unit of capacity — for example, at the DS0 voice grade equipment circuit level. This process is performed outside of the IOF model in a series of Excel spreadsheets that are called equipment files. Investment loading factors are then applied to the material investments to include the associated power, installation, and engineering costs, taking into account the appropriate utilization, to arrive at total installed unit investment. Land and building investments are also calculated by applying investment-based factors to the loaded investment.

The next step is to populate the various circuit designs (supplied by the planning engineers) with these network element investments. These designs are weighted according to frequency of use to determine an average circuit investment per service at the DS0 level, which is, in turn, multiplied by the number of DS0s in the service to yield the appropriate investment level for that service. Since mileage charges are applied on a per airline mile basis using the Vertical and Horizontal Coordinates method, the costs were also determined on an air mile basis. To do this, we have converted the mileage costs, which are determined on actual route miles, to air miles.

Finally, Verizon applies the annual cost factors to each investment account in the typical circuit design to derive annual costs, which are then divided by twelve to derive monthly costs.

The parameter tab is one of the key elements of the model. It is a centralized input source that is linked throughout the various tabs within the model. It summarizes jurisdiction-specific IOF cost model inputs for the following:

- Investments for fiber facilities and conduit;
- Percentage of SONET rings requiring Intermediate Channel Terminations;
- Equipment component utilization factors; and
- Percent weightings for circuit designs.

Intermediate Channel Terminations reflect equipment that is required when a given circuit needs to utilize a second ring in order to reach its destination location. The circuit design weightings represent the frequency of the type of equipment and office designs that are used. These weightings are based on the number of assigned lines per square mile of the offices that are within that jurisdiction.

The DS0 or voice grade equivalent IOF cost results and investments are also used as inputs in the following TELRIC cost studies:

- Voice grade DS0 usage study;
- The IOF facilities included in CCSCIS; and
- The SS7 signaling link.

F. NON-RECURRING COST MODEL

Verizon has developed a standardized non-recurring cost model for the purpose of facilitating the identification of forward-looking service order, central office wiring, provisioning and field installation costs associated with each studied UNE, and service across all of the jurisdictions served by Verizon.

Non-recurring costs are those costs that are associated with the one-time activities that are necessary to process and provision CLECs' requests for a new UNE, a change to an existing UNE or a disconnection of a previously installed UNE. The overall methodology starts by conducting field surveys to gather the current work times. From these surveys, average work times are calculated to which adjustments are made to reflect work times in a forward-looking environment. To the adjusted average work times are applied the appropriate jurisdiction-specific labor rates to compute the costs. Common overhead and gross revenue loadings are then added.

The process for determining the forward-looking work times consists of several steps. First, Verizon developed a list of basic UNEs. Basic UNEs are those that involve a set of provisioning activities that can be used to cost one or more similar network elements or services. For each basic UNE, the functional groups that are involved in provisioning that UNE are identified, and the activities that are performed in each functional group are itemized. These activities are reviewed by the methods and procedures managers, as well as field managers, to ensure the activities are accurately described. Through surveys, work center personnel provide estimates of the time that will be required for each of the identified activities under actual operating conditions. There are two exceptions to the survey process used in this model. For the Mechanized Loop Assignment Center (MLAC), an existing productivity report is used, and for the Telecom Industry Services Operations Center (TISOC), a recent series of observations completed by Andersen Consulting is used. In all of the cases, the cost analysts monitor the survey process to ensure that as many responses are completed as possible.

Concomitant with the identification of the work times, information regarding how often the exact duties need to be performed is required. For example, if there is 90% flow-through in a department, then the manual activity in that functional group only needs to be performed 10% of the time or on 10% of the orders. This is called the "Typical Occurrence Factor." The field managers in the work centers provide the typical occurrence factors used in the non-recurring cost model.

To convert the current work times into forward-looking work times, a panel of subject matter experts familiar with OSS mechanization and with process improvement are asked to give an estimate of what percent of today's work will still be required in a forward-looking environment. This is called the "Forward-Looking Adjustment Factor."

Work times, multiplied by the typical occurrence factors, serve as the baseline to which forward-looking adjustment factors are applied to reflect the benefits of future mechanization, as well as productivity and other process improvements. To this result, Verizon applies the directly assigned labor rate and adds an allocation of common overhead and the gross revenue costs to determine the forward-looking non-recurring costs.

Verizon's non-recurring cost model is an activity-based cost model that develops forward-looking costs. It is designed for ease of use in analyzing costs, and users can also quickly and easily perform "what if" scenarios and sensitivity studies. The model is simply an Excel file with many work sheets, so that all of the components may be clearly displayed. The model contains work sheets or tabs for each basic UNE. The first tab in the model is the Table of Contents, which lists the tabs that are included in the model. A cost summary follows the Table of Contents tab, followed by all of the UNEs that are included in the model. The UNE tabs are labeled numerically. Following the UNE tabs are the common data tabs that reflect the userchangeable variables (*e.g.*, the connect or disconnect work times, typical occurrence and *forward-looking* adjustment factors, the cost factors used in the model, labor trends, and labor rates). By changing the variables in these tabs, the costs are simultaneously recalculated in the UNE tabs, as well as in the cost summary. This facilitates any sensitivity analyses that may be required.

The cost summary tab summarizes the costs of provisioning the service/element within a standard interval and on an expedited basis (i.e., when services are requested to be provisioned in a shorter time interval than normal) costs for all of the UNEs in the model. These costs are subtotaled into the four categories of Service Order, CO Wiring, Provisioning, and Field Installation to match Verizon's rate structure. The manual service order surcharge (applicable when a CLEC chooses not to submit an order electronically) is also displayed in the cost summary tab. The costs from the cost summary are used for mapping to a rate element sheet. This is done outside of the model. A UNE cost could be mapped one-for-one, or combined with other basic UNE costs, to derive rate elements.

The non-recurring cost for each basic UNE is calculated on a separate worksheet. For each UNE, the connect and disconnect times are shown separately. The disconnect costs are discounted by the average service life of a UNE. This is to recognize that disconnect costs will not be incurred until some time in the future. The forward-looking connect and disconnect times are totaled. All of the activities are totaled for a functional group, and then they are multiplied by a levelized labor rate. At the bottom of any given UNE tab, both connect and disconnect costs for the functional groups are totaled into subtotals for Service Order, CO Wiring, Provisioning, and Field Installation. Finally, the Common Overhead and Gross Revenue Loading Factors are applied.

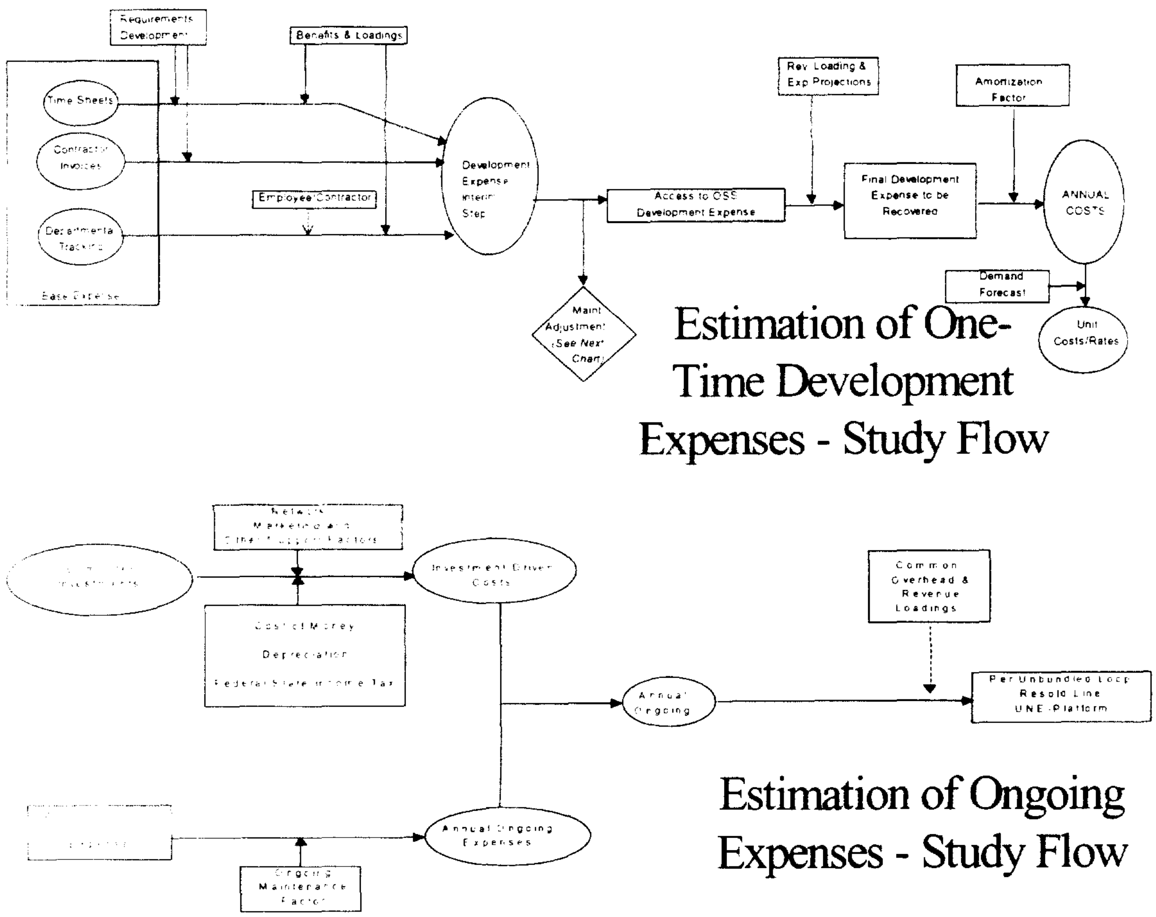
Labor rates are based on the job function code of the employees who are performing the activities. These are directly assigned labor rates that are based on a given base year. They are then trended for three years, and the rates are levelized over those three years. The labor rate reflects the jurisdiction where the work is actually performed. For example, for the Regional CLEC Coordination Center (RCCC), there are three regional centers in New York, Massachusetts and Maryland, each of which process orders throughout the footprint. The labor rate is thus a weighted average of the rates in those three jurisdictions. Central Office Frame technicians, on the other hand, are found in central offices in every jurisdiction. The labor rates used for Central Office Frame technicians are thus jurisdiction-specific.

G. OPERATIONS SUPPORT SYSTEM COST MODEL

Access to OSS is somewhat of a unique unbundled network element. It is comprised of two major components: one is the recovery of development costs associated with providing this unbundled network element, and the second consists of the recurring ongoing costs that we incur on an annual basis.

The Access to OSS unbundled network element is needed by resellers and UNE purchasers in order to exchange information with Verizon. The Access to OSS study is a regional study because the activities and costs associated with the element were incurred on a regional basis, and the service is being provided on a regional basis through data centers located in New York, Massachusetts, New Jersey and Maryland.

OSS Study – Input – Output Flow Chart



The above diagram depicts how the study is designed to flow from the inputs all the way out through the outputs.

First is the estimation of the one-time development expenses. This starts by identifying the base level of expenditures, from time sheets, contractor invoices and